

PAT-NO: JP02000239817A
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TITLE: PRE-HOT DIP Zn-Mg-Al BASED ALLOY PLATED STEEL
SHEET
EXCELLENT IN CORROSION RESISTANCE IN CUT EDGE
FACE
PUBN-DATE: September 5, 2000

INVENTOR-INFORMATION:

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ABSTRACT:

PROBLEM TO BE SOLVED: To improve the corrosion resistance of a cut edge face in a plated steel sheet by controlling the contents of Mg and Al in a pre-hot dip galvanizing based plating layer to specified ranges and moreover incorporating small amounts of Ti and B therein.

SOLUTION: The compsn. of a plating layer in a hot dip Zn-Mg-Al based alloy plated steel sheet is composed of, by weight, 1 to 4% Mg, 4 to 10% Al, and the balance Zn with inevitable impurities. Or, 0.002 to 0.1% Ti and 0.001% to 0.045% B are moreover incorporated therein. Mg promotes the formation of Mg-contg. Zn based corrosion products high in protecting properties on the plating layer and reduces the corrosion rate of the plating layer itself. Moreover, a part of the corrosion products flows into the surface of

the steel
base in the cut edge face to suppress the corrosion of the steel base.
Al in
the plating layer hardly elutes from the plating layer, and Zn-Al based
corrosion products are formed on the lower layer of the Zn based
corrosion
products high in fluidity. By the addition of Ti and B, the formation
of a
Zn₁₁Mg₂ phase damaging the surface appearance can be suppressed.

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